

REMARKS / ARGUMENTS

Status of Claims

Claims 1-15, 17-30 and 32-36 are pending in the application and stand rejected. Of the pending claims, Applicant has canceled Claims 3, 4, 14, 15, 19, 20 and 30, and amended Claims 1, 17, 32, 33 and 35, leaving Claims 1, 2, 5-13, 17-18, 21-29, and 32-36, for consideration upon entry of the present Amendment.

Applicant respectfully submits that the claim objections, and the claim rejections under 35 U.S.C. §112, first paragraph, 35 U.S.C. §112, second paragraph, 35 U.S.C. §102(b), and 35 U.S.C. §103(a), have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

Objections to the Drawings

The drawings filed on May 12, 2003, are objected to for failing to comply with 37 CFR 1.84(p)(5) and 37 CFR 1.83(a).

Regarding Examiner's Paragraph 1

The drawings are objected to for failing to comply with 37 CFR 1.84(p)(5) because they do not include reference signs 48 (paragraph [0031], line 1), and 50 (paragraph [0029], line 9).

Applicant has amended Figure 5 to include reference signs 48 and 50 in such a manner as to reflect the subject matter that was disclosed in the specification as originally filed. (Paragraph [0031], line 1, paragraph [0029], line 9, and originally filed Figure 6 now deleted). No new matter has been added.

Regarding Examiner's Paragraph 2

The drawings are objected to for failing to comply with 37 CFR 1.84(p)(5) because they include reference sign 100 (Fig. 3), which the Examiner alleges is not mentioned in the description.

Applicant respectfully submits that the application as originally filed does mention reference sign 100 in reference to Figure 3.

At paragraph [0029], lines 1-2, Applicant states “Referring to Figure 3, a flow diagram describing a method for reducing radiation exposure 100 from...”. Here, Applicant is describing a “method for reducing radiation exposure”, reference sign 100, as that method 100 depicted in Figure 3.

Regarding Examiner’s Paragraph 3

The drawings are objected to under 37 CFR 1.83(a) because they do not show every feature of the invention specified in the claims, and specifically do not show the entry cursor and the target location cursor claimed in claims 3, 4, 19 and 20.

Applicant has canceled Claims 3, 4, 19 and 20 without prejudice to any remaining claims.

Regarding Examiner’s Paragraph 4

The drawings are objected to under 37 CFR 1.83(a) because they do not show every feature of the invention specified in the claims, and specifically do not show the angular current profile claimed in claims 14, 15 and 30.

Applicant has canceled Claims 14, 15 and 30 without prejudice to any remaining claims.

In view of the foregoing, Applicant respectfully submits that the drawings now comply with 37 CFR 1.84(p)(5) and 37 CFR 1.83(a), that the drawing objections have been either traversed or obviated, and therefore requests entry of the drawing amendments and reconsideration and withdrawal of all drawings objections.

Objections to the Specification

The Examiner has objected to the disclosure for an informality, and has requested that paragraph [0037] be deleted since Figure 6 has been deleted.

Applicant respectfully submits that paragraph [0037] has already been deleted in the Amendment dated May 8, 2003, and therefore no further deletion is required.

At page 3, line 2, of the Amendment dated May 8, 2003, Applicant deleted paragraphs [0022], [0037] and [0038].

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of this objection.

Objections to the Claims

The Examiner has objected to Claim 32 because of informalities, and has requested that:

at line 8, “operates” should be replaced by --operating--, and

at line 10, “controls” should be replaced by --controlling--.

While Applicant has amended Claim 32 for other reasons, Applicant has also reformatted Claim 32 so that the terms “operate” and “control” read more properly. In amended Claim 32, Applicant is claiming, inter alia,

“A method... comprising:

obtaining...

operating...

displaying...; and

processing ...using a processing device, wherein said processing device is adapted

to:

determine...

operate...

control...; and

process...”,

which Applicant believes to be grammatically correct.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of this objection.

Rejection Under 35 U.S.C. §112, First Paragraph

Regarding Examiner’s Paragraph 8

Claims 1-15, 17-30, and 32-36, stand rejected under 35 U.S.C. §112, first paragraph, because the specification allegedly does not reasonably provide enablement

for an entry location other than a physician's hand, but the claims recite "an entry location" that is broader than an entry location of a physician's hand. The Examiner alleges that the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with the claims. (Paper 1103, pages 3-4).

Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that where the specification contains a written description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, then such written description complies with 35 U.S.C. §112, first paragraph.

Applicant has amended independent Claims 1, 17, 32, 33 and 35, to now include the element of an entry location *representative of a location of a hand*, which finds support in the specification as originally filed at paragraph [0029], lines 5-6.

However, in support of enablement for an entry location other than a physician's hand, Applicant refers to paragraph [0029], lines 5-8, where Applicant states that "entry location 40 represents the location of the physician's hand which is disposed within patient cavity 10 *and hence within a radiation field 42*, wherein radiation field 42 includes an average radiation distribution 44 and an angular radiation distribution 46." (Emphasis added). Here, Applicant is describing an entry location 40 that reasonably provides for an entry location other than a physician's hand, for example, the entry of an x-ray beam associated with radiation field 42.

In view of the foregoing amendment and remarks, Applicant respectfully submits that this rejection has been traversed.

Regarding Examiner's Paragraph 9

Claims 1-15, 17-30, 32, and 35-36, stand rejected under 35 U.S.C. §112, first paragraph, because the specification allegedly does not reasonably provide enablement for emitting radiation and controlling radiation intensity. The Examiner alleges that the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with the

claims. The Examiner alleges that the only kind of radiation generated by the CT disclosed by the applicants are x-rays, and that applicants failed to describe generating means for other forms of radiation. (Paper 1103, page 4)

Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that where the specification contains a written description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, then such written description complies with 35 U.S.C. §112, first paragraph.

At paragraph [0024], lines 2-4, Applicant states that “it should be stated that the embodiments described herein may be applied to *any imaging system suitable to the desired end purpose*”. (Emphasis added).

At paragraph [0040], lines 1-4, Applicant states that “a method for reducing radiation exposure from an imaging system 100 may be applied by any imaging system *suitable to the desired purpose*, such as a *magnetic resonance imaging (MRI), ultrasound, X-Ray, CT and/or PET*.” (Emphasis added).

Here, Applicant describes exemplary imaging systems that emit radiation and control radiation intensity by means other than x-rays, and respectfully submits that the art of generating means for other forms of radiation, such as magnetic resonance imaging (MRI), ultrasound, CT and/or PET, is well known to one skilled in the art to which this invention pertains, and that the specification as originally filed contains a written description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same.

In view of the foregoing, Applicant respectfully submits that this rejection has been traversed.

Regarding Examiner's Paragraph 10

Claims 1-4, 6-15, 17-20, 22-30, 32, and 35-36, stand rejected under 35 U.S.C. §112, first paragraph, because the specification allegedly does not reasonably provide enablement for imaging systems other than a fluoro/CT system. The Examiner alleges that the specification does not enable any person skilled in the art to which it pertains, or

with which it is most nearly connected, to make the invention commensurate in scope with the claims. The Examiner alleges that the recited “imaging system” is broader than the fluoro/CT system disclosed by the applicants. (Paper 1103, pages 4-5).

Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that where the specification contains a written description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, then such written description complies with 35 U.S.C. §112, first paragraph.

At paragraph [0024], lines 2-4, Applicant states that “it should be stated that the embodiments described herein may be applied to *any imaging system suitable to the desired end purpose*”. (Emphasis added).

At paragraph [0040], lines 1-4, Applicant states that “a method for reducing radiation exposure from an imaging system 100 may be applied by *any imaging system suitable to the desired purpose*, such as a *magnetic resonance imaging (MRI), ultrasound, X-Ray, CT and/or PET*.” (Emphasis added).

Here, Applicant describes exemplary imaging systems that enable imaging by means other than a fluoro/CT system, and respectfully submits that the art of imaging in other imaging systems, such as magnetic resonance imaging (MRI), ultrasound, x-ray, CT and/or PET, is well known to one skilled in the art to which this invention pertains, and that the specification as originally filed contains a written description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same.

In view of the foregoing, Applicant respectfully submits that this rejection has been traversed.

Regarding Examiner’s Paragraph 11

Claims 14, 15, and 30, stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner alleges that the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with the

claims. The Examiner alleges that the recited “angular current profile” is unclear. (Paper 1103, page 5).

Applicant has canceled Claims 14, 15, and 30, thereby obviating this rejection.

In view of the foregoing amendments and remarks, Applicant respectfully submits that where the specification contains a written description of the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, then such written description complies with 35 U.S.C. §112, first paragraph.

Applicant believes the present specification and claims satisfy that burden, and therefore respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §112, first paragraph.

Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 33-36 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, and more specifically for the use of both an apparatus and the method steps of using the apparatus.

Applicant traverses this rejection for the following reasons.

Applicant has amended independent Claims 33 and 35 to include the element “...wherein said processing device *is adapted to*...”, which directs the claimed subject matter to a structure rather than a method of using the structure.

In view of the foregoing, Applicant respectfully submits that the claims particularly point out and distinctly claim the subject matter that Applicant regards as the invention in such a manner that reasonably conveys to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention, and therefore respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §112, second paragraph, which Applicant considers to be respectfully traversed.

Rejections Under 35 U.S.C. §102(b)

Claims 1, 2, and 5-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Gono et al. (U.S. Patent No. 5,873,826, hereinafter Gono). The Examiner comments that Gono discloses the elements of Claims 1, 2 and 5-12. Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, ***in a single prior art reference.***” *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). Moreover, “[t]he identical invention must be shown in as complete detail as is contained in the *** claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Furthermore, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Applicant has amended independent Claim 1 to include the element of the “...***wherein said operating the imaging system comprises operating the imaging system adapted to provide said angular radiation distribution comprising a first angular radiation distribution suitable for a 360 degree image reconstruction and a second angular radiation distribution suitable for a 180 degree image reconstruction; wherein said first angular radiation distribution has a first average radiation distribution, said second angular radiation distribution has a second average radiation distribution, and said first and second average radiation distributions are about constant throughout said scan.***” (emphasis added), which finds support in the specification as originally filed at paragraphs [0030-0032] and Figures 4B and 5.

Here, Applicant claims a method for reducing radiation exposure that includes the operation of an imaging system, where the imaging system is adapted for 360 degree image reconstruction and 180 degree image reconstruction, and where the average radiation distribution 44 for each type of image reconstruction is about constant throughout a scan while allowing for the angular radiation distribution 46 to be modified. Paragraph [0032], lines 8-10, and Figure 5.

Applicant submits that while Gono may disclose a fluoroscopy method and x-ray CT apparatus capable of half-scan (180 degree) reconstruction and full-scan (360 degree) reconstruction, and being capable of an ON/OFF current setting or a trigonometric current function (Title, and col. 5, line 31, through col. 6, line 15), Gono fails to disclose all elements of the invention as claimed. More specifically, Applicant submits that Gono fails to disclose "...wherein said first angular radiation distribution (suitable for a 360 degree image reconstruction) has a first average radiation distribution, said second angular radiation distribution (suitable for a 180 degree image reconstruction) has a second average radiation distribution, and *said first and second average radiation distributions are about constant throughout said scan.*"

Dependent claims inherit all of the limitations of the parent claim.

In view of the amendment and foregoing remarks, Applicant submits that Gono does not disclose each and every element of the claimed invention and therefore cannot be anticipatory. Accordingly, Applicant respectfully submits that the Examiner's rejection under 35 U.S.C. §102(b) has been traversed, and requests that the Examiner reconsider and withdraw of this rejection.

Rejections Under 35 U.S.C. §103(a)

Claims 17, 18, and 21-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Gono in view of Zmora (U.S. Patent No. 6,028,909, hereinafter Zmora).

The Examiner acknowledges that Gono fails to teach a medium encoded with a machine-readable computer program code that implements the method of claims 1, 2, and 5-12, and looks to Zmora to cure this deficiency.

Applicant traverses the Examiner's rejections for the following reasons.

Applicant respectfully submits that the obviousness rejection based on the References is improper as the References fail to teach or suggest each and every element of the instant invention. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

While Zmora may disclose a method for CT imaging in the form of a computer readable medium (Abstract, and col. 8, lines 24-29), Applicant submits that Zmora as referenced fails to cure the deficiencies of Gono with respect to the elements of Claims 17, 18, and 21-28.

In comparing Zmora with the claimed invention, Applicant submits that Zmora fails to teach, or suggest the element of "...wherein said operating the imaging system comprises operating the imaging system adapted to provide said angular radiation distribution comprising a first angular radiation distribution suitable for a 360 degree image reconstruction and a second angular radiation distribution suitable for a 180 degree image reconstruction; wherein said first angular radiation distribution has a first average radiation distribution, said second angular radiation distribution has a second average radiation distribution, and ***said first and second average radiation distributions are about constant throughout said scan***", as claimed in independent Claim 17. Dependent claims inherit all of the limitations of the parent claim.

In view of the foregoing, Applicant submits that the References fail to teach or suggest each and every element of the claimed invention and disclose a substantially different invention from the claimed invention, and therefore cannot properly be used to

establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

In light of the forgoing, Applicant respectfully submits that the Examiner's rejections under 35 U.S.C. §112, first paragraph, 35 U.S.C. §112, second paragraph, 35 U.S.C. §102(b), 35 U.S.C. §103(a), have been traversed, and respectfully request that the Examiner reconsider and withdraw these rejections.


The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 07-0845.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above identified Deposit Account.

Respectfully submitted,

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FIG. 4B

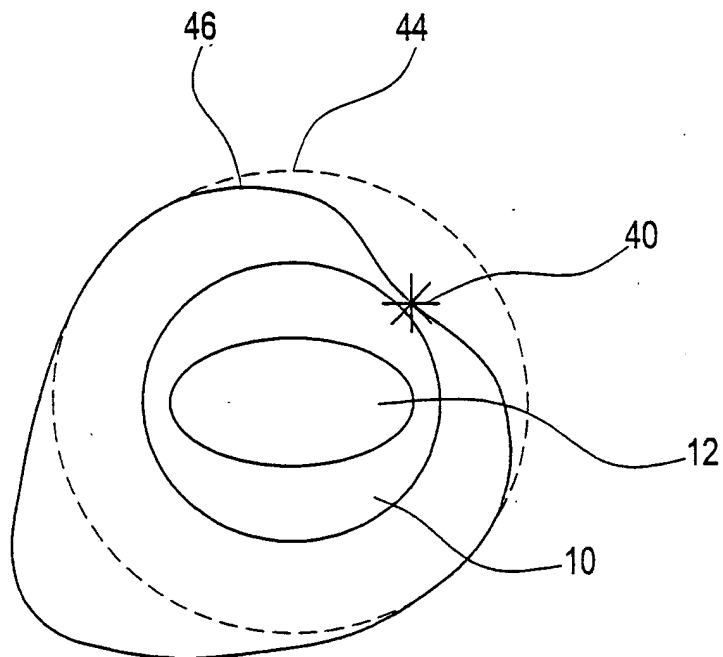


FIG. 5

